



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Memorandum

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Subject:	Action: Review and Concurrence, Equivalent Level of Safety Finding for Embraer S.A. Model EMB-135BJ FAA Project Number No. AT5124AT-T	Date:	September 11, 2002
		Reg. Ref:	25.857 and 25.1447
From:	Manager, Airframe & Cabin Safety Branch, ANM-115	Reply to Attn of:	Carla Worthey ACE-118 A
To:	Manager, Atlanta ACO, ACE-115A	ELOS Memo #:	AT5124AT-T-A-6

## Background

The EMB-135BJ model interior configuration presents a door in the partition panel between the Class C cargo compartment, located at the aft end of the cabin, and the passenger compartment. This door is intentionally designed to provide in-flight access to the cargo compartment. Such in-flight access could impact the isolation of the passenger cabin from the cargo compartment in the event that any fire or smoke starts within the cargo compartment. In addition, the in-flight access to the Class C compartment creates unique hazards resulting from passengers having access to cargo and baggage in the compartment. Embraer has demonstrated compliance to additional requirements that provide an equivalent level of safety to ensure sufficient cabin isolation from fire and smoke, and for passenger safety while occupying the Class C compartment.

## Applicable regulation(s)

25.855, 25.787, 25.857(c) and 25.1447

## Regulation(s) requiring an ELOS

25.857 at Amendment 25-93, and 25.1447 at Amendment 25-41

## Description of compensating design features or alternative standards which allow the granting of the ELOS (including design changes, limitations or equipment need for equivalency)

Embraer has agreed to show compliance with the following limitations and compensating features for the accessible cargo compartment on the EMB-135BJ:

1. Means shall be provided to indicate to the pilot in real time, during all aircraft operation, if the cargo compartment door is closed or open.

2. Means must be provided to keep the door open while the cargo compartment is occupied.
3. Oxygen dispensing units shall be automatically presented and immediately available to an occupant of the baggage compartment with at least one extra unit available, but no oxygen shall be plumbed to the compartment. In the case of the EMB-135BJ, the FAA concurs that the lavatory oxygen masks would meet this requirement.
4. For cargo and baggage placed in the baggage compartment whose primary retention means is by net, the net shall be constructed so that the means of opening and closing or securing the net is easily identified and operated. Alternatively, access to the compartment should not require disruption of the net.

**Explanation of how design features or alternative standards provide an equivalent level of safety to the level of safety intended by the regulation**

The cockpit indication that the cargo compartment door is open, along with the provisions to keep the door open when occupied, provides necessary information to the flight crew to know when the cargo compartment isolation requirements of 25.857 are met. Associated Airplane Flight Manual procedures ensure that the crew will not discharge fire inhibiting agents into the cargo area until the occupants have left and the door is closed and latched. This provides an equivalent level of safety to FAR 25.857.

To maintain the Class C cargo compartment requirements, no oxygen can be plumbed into the compartment. Oxygen dispensing units located in the lavatory, which is located just forward of the cargo compartment, will provide adequate oxygen to any occupant of the cargo compartment. This provides an equivalent level of safety to 25.1447.

The additional requirements to ensure that the cargo net is easily and properly operated are implemented to ensure that baggage does not shift in flight to possibly injure an occupant of the compartment, or damage the aircraft structure.

**FAA approval and documentation of the ELOS**

The FAA has approved the aforementioned Equivalent Level of Safety Finding in Issue Paper A-6. This memorandum provides standardized documentation of the ELOS that is non-proprietary and can be made available to the public. The Transport Directorate has assigned a unique ELOS Memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS Memorandum number should be listed in the Type Certificate Data Sheet under the Certification Basis section (TC's & ATC's) or on page 3 of the STC Certificate. [E.g. Equivalent Safety Findings have been made for the following regulation(s): 25.857 and 25.1447: Cargo Compartment Classification and Equipment Standards for Oxygen Dispensing Units (documented in TAD ELOS Memo No. AT5124AT-T-A-6)]

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Manager, Airframe & Cabin Safety Branch, ANM-115

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Date

ELOS Originated by	Program Manager:	Routing Symbol
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Atlanta ACO:	Carla Worthey	ACE-118 A
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